



WHAT IS CLAIMED IS:

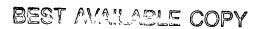
- 1. A method for treating or preventing a neurodegenerative disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the nervous system of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said neurodegenerative disease.
- 2. A method for treating or preventing a neurodegenerative disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the brain of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said neurodegenerative disease.
- 3. A method for treating or preventing symptoms of a neurodegenerative disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the nervous system of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said neurodegenerative disease.
- 4. A method for treating or preventing symptoms of a neurodegenerative disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the brain of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said neurodegenerative disease.
- 5. A method for treating or preventing Parkinson's disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the nervous system of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said Parkinson's disease.
- 6. A method for treating or preventing Parkinson's disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the brain of

25

30

5

10



the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said Parkinson's disease.

- 7. A method for treating or preventing symptoms of Parkinson's disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the nervous system of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said symptoms of Parkinson's disease.
- 8. A method for treating or preventing symptoms of Parkinson's disease in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the brain of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said symptoms of Parkinson's disease.
- 9. A method for treating or preventing nigrostriatal degeneration and/or inducing nigrostriatal regeneration in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the brain of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said nigrostriatal degeneration and/or inducing nigrostriatal regeneration.
- 10. A method for treating or preventing nigrostriatal degeneration and/or inducing nigrostriatal regeneration in a mammal in need of such treatment comprising administering a lentiviral vector to a target cell in the nervous system of the mammal, said lentiviral vector comprising a nucleic acid sequence comprising a sequence encoding a growth factor operably linked to a promoter, wherein the growth factor is expressed in the target cell thereby treating or preventing said nigrostriatal degeneration and/or inducing nigrostriatal regeneration.
 - 11. The method of any one of claims 1-10 wherein the lentiviral vector is an EIAV.
 - 12. The method of any one of claims 1-10 wherein the lentiviral vector is an HIV.
 - 13. The method of any one of claims 1-10 wherein the lentiviral vector is an SIV.

25

30

5

10

25

30

5

10

- 14. The method of any one of claims 1-10 wherein the lentiviral vector is an FIV.
- 16. The method of any one of claims 1-10 wherein the lentiviral vector is a non-primate lentiviral vector.
- 17. The method of any one of claims 1-10 wherein the nucleic acid sequence encodes a GDNF.
 - 18. The method of claim 17 wherein the GDNF is a human GDNF or a variant, homolog, analog or derivative of human GDNF that has activity of human GDNF.
 - 19. The method of claim 18 wherein the GDNF is a human GDNF.
- 20. The method of any one of claims 1, 3, 5, 7, or 10 wherein the nervous system is the central nervous system.
 - 20. The method of any one of claims 1, 3, 5, 7, or 10 wherein the nervous system is the peripheral nervous system.
 - 21. The method of any one of claims 1-10 wherein the mammal is a primate.
 - 22. The method of claim 21 wherein the primate is a human.
- 23. The method of any one of claims 1-10 wherein the administering is intracranially.
- 24. The method of claim 23 wherein the administering intracranially is to the striatum.
- 25. The method of claim 23 wherein the administering intracranially is to the substantia nigra.
- 26. The method of any one of claims 1-10 wherein the administering is by retrograde transport.
- 27. The method of any one of claims 1-10 wherein there is growth factor expression for a duration of up to 8 months.
- 28. The method of any one of claims 5, 6, 7 or 8 wherein the treating of Parkinson's disease or of symptoms of Parkinson's disease is defined as a reversal of motor deficits.
- 29. The method of any one of claims 1-8 wherein the method is a method for treating.
- 30. The method of any one of claims 9-10 wherein the method is a method for preventing nigrostriatal degeneration and/or inducing nigrostriatal regeneration.